

ABSTRACT

The present invention includes a method for extracting bio-functional and bio-responsive fractions from biomass. The method includes providing biomass; treating the biomass with saturated steam at a time and temperature effective to
5 extract bio-functional fractions; rapidly depressurizing the biomass and steam; mixing a depressurized bio-functional fraction with reagent that breaks down the fraction into oligomers and monomers; and separating the monomers from the each other and the oligomers using ion exchange.